

### **Remarks**

Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks.

Claims 1, 2, 5-12, 15, 17, 21, 23, 25-30, 32-34, 37, 40, 41, and 43 are pending.

Claims 1, 2, 5-12, 15, 17, 21, 23, 25-30, 32-34, 37, 40, 41, and 43 are rejected.

Claim 22 has been canceled without prejudice to renewal or presentation in another patent application.

### ***New Claims***

New claims 44 and 45 have been added. New claim 44 finds support, for example, at page 18, line 9 et seq. of the Application. New claim 45 finds support, for example, at page 29, line 23 of the Application.

### ***Claim Objections***

Claim 40 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have put the claim into independent form by incorporating the language of amended claim 25 into the claim.

### ***Claim Rejections – 35 USC § 112***

Claims 22, 41, and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Claim 22 has been canceled.

Claim 41 has been amended to recite “electronic device” as supported at page 9, line 28 of the Application. The rejection can now be withdrawn.

Claim 43 has been amended to recite an information transfer technique described at page 14, line 13 of the Application. The rejection can now be withdrawn.

### ***Claim Rejections – 35 USC § 103***

Claims 1-2 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirby et al., Analysis of Applying Artificial Neural Networks for Employee Selection" AMCIS 1998 ("Kirby"), and further in view of Decision Point Data, Inc., "1999 StoreWorks! Conference and Exhibition" May 1999 ("DPD").

#### **Claim 1**

Claim 1 has been amended to recite:

... wherein collecting post-hire information comprises receiving payroll information for the applicants via a network, determining a termination date for an applicant from the payroll information received via the network, and determining tenure of the applicant by comparing the termination date with a hiring date of the applicant.

For example, the Application describes at page 18, line 22 et seq.:

The server 1242 receives information from the payroll server 1222 via the network 1232 (e.g., via any number of protocols, such as FTP, email, and the like).

And at page 18, line 9 et seq.:

Post-hire information can be generated by examining payroll information. For example, a system can track whether an employee has been dropped from the payroll. Such an event typically indicates that the employee has been terminated. Thus, the employee's tenure can be determined by comparing the termination date with the employee's hire date.

As understood by Applicants, Kirby and DPD fail to describe such an arrangement.

**Kirby's description of collecting performance appraisal data is silent regarding payroll information.** Kirby does mention, "Most firms collect performance appraisal data" at the top of page 77 (top of printed page 3). However, as understood by Applicants, Kirby fails to describe "receiving payroll information" or "determining a termination date for an applicant from the payroll information" as recited by claim 1. One or skill in the art could not be expected to surmise the recited arrangement relating to

payroll information based on Kirby's mere mention of collecting performance appraisal data.

**DPD's description of Hire and Termination data is not sufficient to teach or suggest the recited payroll information arrangement.** At page 6, DPD shows "Hire and Term DATA" coming from Corporate Human Resources. However, DPD does not describe "determining a termination date for an applicant from the payroll information" as recited by claim 1. Even if the DPD system were to use payroll information, DPD does not describe payroll information as being used as it is in the recited arrangement (e.g., "generating an artificial intelligence-based predictive model").

**The combination of determining a termination data from payroll information received via a network and generating an artificial intelligence-based predictive model is nonobvious over Kirby and DPD combined.** As described in the Application at page 18, line 6 et seq.:

A problem can arise when collecting post-hire information. For example, it may be difficult to achieve high compliance rates for exit interviews. Also, collection of information relating to termination dates and reasons for termination may be sporadic.

As understood by Applicants, neither Kirby nor DPD contemplate such problems, or solving via "receiving payroll information for the applicants via a network," particularly when generating an artificial intelligence-based predictive model, and thus lack sufficient motivation to combine or modify the other to result in the claimed arrangement.

For at least these reasons, claim 1 and its dependent claims, 5-12, and 44 (new claim 44 finds support at page 18, line 9 et seq. of the Application) are allowable over Kirby and DPD.

## **Claim 2**

Amendments to claim 2 are similar to those for claim 1, and claim 2 is allowable for at least the same reasons stated for claim 1, above.

***Claim Rejections – 35 USC § 102***

Claims 15, 17, and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirby. Claim 15 recites:

generating a plurality of predictive artificial intelligence models based on the pre-hire and post-hire information, wherein at least two of the artificial intelligence models are of different feed-forward types and different architectures;

For example, the Application describes at page 12, lines 19 et seq.:

When building a model, a variety of various proposed models can be evaluated, and one(s) exhibiting superior performance can be chosen. For example, various types of feed-forward neural networks (e.g., back propagation, conjugate gradients, quasi-Newton, Levenberg-Marquardt, quick propagation, delta-bar-delta, linear, radial basis function, generalized regression network [e.g., linear], and the like) can be built based on collected pre- and post-hire data and a superior one identified and chosen. The proposed models can also be of different architectures (e.g., different number of layers or nodes in a layer). It is expected that other types of neural network types will be developed in the future, and they also can be used.

**Kirby's description of stochastic methods and deterministic optimization does not teach generating artificial intelligence models of different types and architectures.** Kirby at page 76 (page 2, line 24 of the printout) describes:

While other techniques such as the stochastic methods and deterministic optimization techniques are available to access relationships between predictors and criteria, the neural network model may work better because non-linear relationships with multiple outcomes can be handled.

However, the plain intent of Kirby is that stochastic methods and deterministic optimization techniques are **alternatives** to the neural network model, not types of neural networks. Thus, Kirby fails to anticipate the recited arrangement.

Concerning the Action's assertion that any two different neural networks are of different "types," Applicants reject the interpretation. Applicants have

amended the claim to read “different feed-forward types” and “different architectures” (e.g., different number of layers or nodes in a layer). As understood by Applicants, Kirby fails to describe such an arrangement.

For at least these reasons, claim 15 and its dependent claims, 17, 21-22, and 45 are allowable over Kirby.

### ***Claim Rejections – 35 USC § 103***

Claims 23, 25-30, 32-34, 37, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirby, and further in view of Kaak, “The weighted Application Blank” April 1998 (“Kaak”).

#### **Claim 23**

Claim 23 recites:

testing effectiveness of at least one of the questions in predicting tenure; and

responsive to determining the question is ineffective in predicting tenure, deleting the question from the computer-readable medium.

For example, the Application describes possible post-hire information as follows at page 17, line 16 et seq.:

Predicted post-hire outcomes can be any of a number of metrics. For example, number of accidents, sales level, eligibility for rehire, voluntary termination, and tenure can be predicted.

The claim has further been amended to add language regarding receiving payroll information as described in the discussion of claim 1. The Action rejects the claim with Kirby and Kaak.

**Kaak and Kirby fail to teach or suggest the payroll information arrangement recited by claim 23.** Kaak does mention “predicted job tenure” at the top of the second column of page 21. However, as understood by Applicants, Kaak fails to describe “receiving payroll information” or “determining a termination date for an employment candidate from the payroll information” as recited by claim 23. Instead, Kaak merely

describes “short tenure” and “long tenure” at page 19, second column. One of skill in the art could not be expected to surmise the recited arrangement relating to payroll information based on Kaak.

Kirby mentions merely, “Most firms collect performance appraisal data” at the top of page 77 (top of printed page 3). Thus, neither Kirby nor Kaak would lead one to the recited arrangement concerning payroll information.

For at least these reasons, claim 23 is allowable over Kirby and Kaak, alone or in combination.

### **Claim 25**

Claim 25 recites:

wherein the one or more predicted job effectiveness criteria comprise at least one selected from the group consisting of:

whether the job applicant will be involuntarily terminated, and whether the job applicant will be eligible for rehire upon termination.

The Action rejects claim 25 over Kirby in view of Kaak, pointing to Kirby’s description of “performance appraisal data” at p. 76 and Kaak’s description of “tenure” at p. 20. The Action reasons that the job effectiveness criteria recited by the claim are “just some of the performance variables [that] can be used.”

Applicants have focused the claim to predicting “whether the job applicant will be involuntarily terminated” or “whether the job applicant will be eligible for rehire upon termination.” Applicants disagree that the recited arrangement using such job effectiveness criteria would be obvious. One of skill in the art presented with “performance appraisal data” could not be expected to surmise the recited arrangement with the non-specific description of Kirby.

Accordingly, claim 25 and its dependent claims, 26-30, and 32-34, are allowable over Kirby and Kaak.

### **Claim 37**

Claim 37 recites:

wherein the one or more predictive outputs are configured to predict whether the job applicant will be involuntarily terminated or whether the job applicant will be eligible for rehire upon termination . . .

As indicated in the remarks for claim 25, Applicants do not find such an arrangement as obvious over Kirby in combination with Kaak.

For at least these reasons, claim 37 and its dependent claim, 43, are allowable over a Kirby-Kaak combination.

#### **Claim 41**

Claim 41 recites:

wherein the one or more predicted job effectiveness criteria comprise at least one selected from the group consisting of:

whether the job applicant will be involuntarily terminated, and whether the job applicant will be eligible for rehire upon termination.

As indicated in the remarks for claim 25, Applicants do not find such an arrangement as obvious over Kirby in combination with Kaak.

For at least these reasons, claim 41 is allowable over a Kirby-Kaak combination.

#### ***Claim Rejections – 35 USC § 103***

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirby, in view of Kaak, as applied to claim 25 above, and further in view of DPD.

Claim 40 recites:

wherein the one or more predicted job effectiveness criteria comprise at least one selected from the group consisting of: whether the job applicant will be involuntarily terminated, and whether the job applicant will be eligible for rehire upon termination . . .

As explained in the discussion of claim 25, above, Applicants disagree that the recited arrangement would be obvious over Kirby in view of Kaak. DPD does describe “turnover” but does not contain sufficient description to render obvious the recited

arrangement of "whether the job applicant will be involuntarily terminated, and whether the job applicant will be eligible for rehire upon termination" as recited in claim 40.

For at least these reasons, claim 40 is allowable over Kirby, Kaak, and DPD.

***Request for Interview***

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office Action in order to arrange a telephonic interview. A brief discussion of the merits of the present application may expedite prosecution.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

***Conclusion***

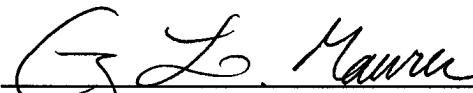
The claims in their present form should now be allowable. Such action is respectfully requested.

Respectfully submitted,

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